FILE COPY

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Westfield
Westfield Executive Park
53 Southampton Road
Westfield, MA 01085
Tel: (413)572-4000

CHECKED FOR COMPLETENESS OF PARAMETERS ORDERED BY:

TestAmerica Job ID: 360-37596-1
Client Project/Site: Olin Chemical

For:
Olin Corporation
PO BOX 248
Charleston, Tennessee 37310-0248

Attn: Mr. James Cashwell

Authorized for release by:
12/2/2011 2:40:31 PM
Chris Reynolds
QA Manager
chris.reynolds@testamericainc.com

Designee for

Becky Mason
Project Manager II
becky.mason@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Client: Olin Corporation
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37596-1

Job ID: 360-37596-1

Laboratory: TestAmerica Westfield

Narrative

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/11/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 6.0 C.

Note: All samples that require thermal preservation are considered acceptable if the arrival temperature is within the method's specified temperature range or for general analysis, ranging from 6°C to just above the freezing temperature of water. Samples that are hand delivered, immediately following collection, may not meet these criteria; however, they will be considered acceptable according to NELAC and State standards, if there is evidence that the chilling process has begun, such as stored and transported to the laboratory on ice.

DISSOLVED METALS

Samples OC-GW-26 (360-37596-1), OC-GW-10s (360-37596-2), OC-GW-76s (360-37596-3), OC-GW-24 (360-37596-4) and OC-GW-25 (360-37596-5) were analyzed for dissolved metals in accordance with EPA SW-846 Method 6010B. The samples were analyzed on 11/23/2011.

At the request of the client, an abbreviated/modified MCP analyte list was reported for this job.

No difficulties were encountered during the dissolved metals analyses.

All quality control parameters were within the acceptance limits.

SPECIFIC CONDUCTIVITY

Samples OC-GW-26 (360-37596-1), OC-GW-10s (360-37596-2), OC-GW-76s (360-37596-3), OC-GW-24 (360-37596-4) and OC-GW-25 (360-37596-5) were analyzed for specific conductivity in accordance with SM20 2510B. The samples were analyzed on 11/19/2011.

At the request of the client, an abbreviated/modified MCP analyte list was reported for this job.

No difficulties were encountered during the conductivity analyses.

All quality control parameters were within the acceptance limits.

ANIONS (28 DAY HOLD TIME)

Samples OC-GW-26 (360-37596-1), OC-GW-10s (360-37596-2), OC-GW-76s (360-37596-3), OC-GW-24 (360-37596-4) and OC-GW-25 (360-37596-5) were analyzed for anions (28 day hold time) in accordance with EPA Method 300.0. The samples were analyzed on 11/21/2011.

Samples OC-GW-26 (360-37596-1)[10X] and OC-GW-25 (360-37596-5)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analyses.

All quality control parameters were within the acceptance limits.

AMMONIA

Samples OC-GW-26 (360-37596-1), OC-GW-10s (360-37596-2), OC-GW-76s (360-37596-3), OC-GW-24 (360-37596-4) and OC-GW-25

Job ID: 360-37596-1 (Continued)

Laboratory: TestAmerica Westfield (Continued)

(360-37596-5) were analyzed for ammonia in accordance with Lachat 107-06-1B. The samples were prepared and analyzed on 11/23/2011 and 11/30/2011.

Samples OC-GW-26 (360-37596-1)[10X], OC-GW-24 (360-37596-4)[4X] and OC-GW-25 (360-37596-5)[4X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the ammonia analyses.

All other quality control parameters were within the acceptance limits.

MassDEP Analytical Protocol Certification Form

Laboratory Name: **TestAmerica Westfield** Project #: **360-37596-1**

Project Location: **Wilmington Ma** RTN:

This form provides certifications for the following data set: list Laboratory Sample ID Number(s):

360-37596-1 [1-5]

Matrices: [X] Groundwater/Surface Water [ ] Soil/Sediment [ ] Drinking Water [ ] Air [ ] Other:

CAM Protocols (check all that apply below):

8260 VOC CAM II A [ ]	7470/7471 Hg CAM III B [ ]	Mass DEP VPH CAM IV A [ ]	8081 Pesticides CAM V B [ ]	7196 Hex Cr CAM VI B [ ]	Mass DEP APH CAM IX A [ ]
8270 SVOC CAM II B [ ]	7010 Metals CAM III C [ ]	Mass DEP EPH CAM IV B [ ]	8151 Herbicides CAM V C [ ]	8330 Explosives CAM VIII A [ ]	TO-15 VOC CAM IX B [ ]
6010 Metals CAM III A [X]	6020 Metals CAM III D [ ]	8082 PCB CAM V A [ ]	9014 Total Cyanide/PAC CAM VI A [ ]	332.0 Perchlorate CAM VIII B [ ]	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding time.	[X] Yes [ ] No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	[X] Yes [ ] No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	[X] Yes [ ] No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	[X] Yes [ ] No
E	a. VPH, EPH and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	[ ] Yes [ ] No [ ] Yes [ ] No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	[X] Yes [ ] No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

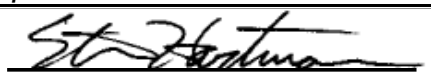
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	[X] Yes [ ] No[1]

***Data User Note:* Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WCS-07-350**

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	[X] Yes [ ] No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s) ?	[ ] Yes [X] No

[1] All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature:  Position: Laboratory Director

Printed Name: Steven C. Hartmann Date: 12/2/11 14:34

This form has been electronically signed and approved

Detection Summary

Client: Olin Corporation
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37596-1

Client Sample ID: OC-GW-26 — Lab Sample ID: 360-37596-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	6.1		5.0	0.65	ug/L	1		6010B	Dissolved

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	32		2.0	2.0	mg/L	1		300.0	Total/NA
Chloride	330		10	10	mg/L	10		300.0	Total/NA
Ammonia	47		1.0	1.0	mg/L	10		L107-06-1B	Total/NA
Specific Conductance	1200		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-GW-10s — Lab Sample ID: 360-37596-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	3600		100	13	ug/L	1		6010B	Dissolved

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	69		2.0	2.0	mg/L	1		300.0	Total/NA
Chloride	20		1.0	1.0	mg/L	1		300.0	Total/NA
Ammonia	4.0		0.10	0.10	mg/L	1		L107-06-1B	Total/NA
Specific Conductance	220		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-GW-76s — Lab Sample ID: 360-37596-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	2.3	J	5.0	0.65	ug/L	1		6010B	Dissolved

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	38		2.0	2.0	mg/L	1		300.0	Total/NA
Chloride	4.3		1.0	1.0	mg/L	1		300.0	Total/NA
Ammonia	6.7		0.10	0.10	mg/L	1		L107-06-1B	Total/NA
Specific Conductance	150		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-GW-24 — Lab Sample ID: 360-37596-4

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	53		2.0	2.0	mg/L	1		300.0	Total/NA
Chloride	13		1.0	1.0	mg/L	1		300.0	Total/NA
Ammonia	36		0.40	0.40	mg/L	4		L107-06-1B	Total/NA
Specific Conductance	340		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-GW-25 — Lab Sample ID: 360-37596-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	2.4	J	5.0	0.65	ug/L	1		6010B	Dissolved

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	96		20	20	mg/L	10		300.0	Total/NA
Chloride	110		10	10	mg/L	10		300.0	Total/NA
Ammonia	36		0.40	0.40	mg/L	4		L107-06-1B	Total/NA
Specific Conductance	770		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Method Summary

Client: Olin Corporation
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37596-1

Method	Method Description	Protocol	Laboratory
6010B	Dissolved Metals	SW846	TAL WFD
300.0	Chloride & Sulfate	40CFR136A	TAL WFD
L107-06-1B	Nitrogen Ammonia	LACHAT	TAL WFD
SM 2510B	Conductivity, Specific Conductance	SM	TAL WFD

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
LACHAT = LACHAT

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL WFD = TestAmerica Westfield, Westfield Executive Park, 53 Southampton Road, Westfield, MA 01085, TEL (413)572-4000

Sample Summary

Client: Olin Corporation
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37596-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
360-37596-1	OC-GW-26	Water	11/11/11 09:35	11/11/11 17:25
360-37596-2	OC-GW-10s	Water	11/11/11 10:20	11/11/11 17:25
360-37596-3	OC-GW-76s	Water	11/11/11 11:25	11/11/11 17:25
360-37596-4	OC-GW-24	Water	11/11/11 09:35	11/11/11 17:25
360-37596-5	OC-GW-25	Water	11/11/11 08:35	11/11/11 17:25

Method: 6010B - Dissolved Metals - Dissolved

Client Sample ID: OC-GW-26
Date Collected: 11/11/11 09:35
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	13	ug/L			11/23/11 14:22	1
Chromium	**6.1**		5.0	0.65	ug/L			11/23/11 14:22	1

Client Sample ID: OC-GW-10s
Date Collected: 11/11/11 10:20
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3600**		100	13	ug/L			11/23/11 14:34	1
Chromium	ND		5.0	0.65	ug/L			11/23/11 14:34	1

Client Sample ID: OC-GW-76s
Date Collected: 11/11/11 11:25
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	13	ug/L			11/23/11 14:37	1
Chromium	**2.3**	**J**	5.0	0.65	ug/L			11/23/11 14:37	1

Client Sample ID: OC-GW-24
Date Collected: 11/11/11 09:35
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	13	ug/L			11/23/11 14:40	1
Chromium	ND		5.0	0.65	ug/L			11/23/11 14:40	1

Client Sample ID: OC-GW-25
Date Collected: 11/11/11 08:35
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	13	ug/L			11/23/11 14:43	1
Chromium	**2.4**	**J**	5.0	0.65	ug/L			11/23/11 14:43	1

General Chemistry

Client Sample ID: OC-GW-26
Date Collected: 11/11/11 09:35
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-1
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	32		2.0	2.0	mg/L			11/21/11 19:58	1
Chloride	330		10	10	mg/L			11/21/11 20:14	10
Ammonia	47		1.0	1.0	mg/L		11/23/11 09:19	11/23/11 15:08	10
Specific Conductance	1200		1.0	1.0	umhos/cm			11/19/11 08:45	1

Client Sample ID: OC-GW-10s
Date Collected: 11/11/11 10:20
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-2
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	69		2.0	2.0	mg/L			11/21/11 21:35	1
Chloride	20		1.0	1.0	mg/L			11/21/11 21:35	1
Ammonia	4.0		0.10	0.10	mg/L		11/30/11 10:45	11/30/11 16:26	1
Specific Conductance	220		1.0	1.0	umhos/cm			11/19/11 08:46	1

Client Sample ID: OC-GW-76s
Date Collected: 11/11/11 11:25
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-3
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	38		2.0	2.0	mg/L			11/21/11 22:07	1
Chloride	4.3		1.0	1.0	mg/L			11/21/11 22:07	1
Ammonia	6.7		0.10	0.10	mg/L		11/30/11 10:45	11/30/11 16:27	1
Specific Conductance	150		1.0	1.0	umhos/cm			11/19/11 08:48	1

Client Sample ID: OC-GW-24
Date Collected: 11/11/11 09:35
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-4
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	53		2.0	2.0	mg/L			11/21/11 22:39	1
Chloride	13		1.0	1.0	mg/L			11/21/11 22:39	1
Ammonia	36		0.40	0.40	mg/L		11/30/11 10:45	11/30/11 16:52	4
Specific Conductance	340		1.0	1.0	umhos/cm			11/19/11 08:49	1

Client Sample ID: OC-GW-25
Date Collected: 11/11/11 08:35
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-5
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	96		20	20	mg/L			11/21/11 20:46	10
Chloride	110		10	10	mg/L			11/21/11 20:46	10
Ammonia	36		0.40	0.40	mg/L		11/30/11 10:45	11/30/11 16:53	4
Specific Conductance	770		1.0	1.0	umhos/cm			11/19/11 08:51	1

Client: Olin Corporation
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37596-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Metals

Analysis Batch: 83882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37596-1	OC-GW-26	Dissolved	Water	6010B	
360-37596-1 DU	OC-GW-26	Dissolved	Water	6010B	
360-37596-1 MS	OC-GW-26	Dissolved	Water	6010B	
360-37596-2	OC-GW-10s	Dissolved	Water	6010B	
360-37596-3	OC-GW-76s	Dissolved	Water	6010B	
360-37596-4	OC-GW-24	Dissolved	Water	6010B	
360-37596-5	OC-GW-25	Dissolved	Water	6010B	
LCS 360-83882/1	Lab Control Sample	Total/NA	Water	6010B	
LCSD 360-83882/13	Lab Control Sample Dup	Total/NA	Water	6010B	
MB 360-83882/2	Method Blank	Total/NA	Water	6010B	

General Chemistry

Analysis Batch: 83626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37596-1	OC-GW-26	Total/NA	Water	SM 2510B	
360-37596-2	OC-GW-10s	Total/NA	Water	SM 2510B	
360-37596-3	OC-GW-76s	Total/NA	Water	SM 2510B	
360-37596-4	OC-GW-24	Total/NA	Water	SM 2510B	
360-37596-5	OC-GW-25	Total/NA	Water	SM 2510B	
LCS 360-83626/1	Lab Control Sample	Total/NA	Water	SM 2510B	
MB 360-83626/3	Method Blank	Total/NA	Water	SM 2510B	

Prep Batch: 83810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37596-1	OC-GW-26	Total/NA	Water	Distill/Ammonia	
LCS 360-83810/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
MB 360-83810/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 83913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37596-1	OC-GW-26	Total/NA	Water	L107-06-1B	83810
LCS 360-83810/2-A	Lab Control Sample	Total/NA	Water	L107-06-1B	83810
MB 360-83810/1-A	Method Blank	Total/NA	Water	L107-06-1B	83810

Prep Batch: 84076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37596-2	OC-GW-10s	Total/NA	Water	Distill/Ammonia	
360-37596-3	OC-GW-76s	Total/NA	Water	Distill/Ammonia	
360-37596-4	OC-GW-24	Total/NA	Water	Distill/Ammonia	
360-37596-5	OC-GW-25	Total/NA	Water	Distill/Ammonia	
LCS 360-84076/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
MB 360-84076/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 84104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37596-1	OC-GW-26	Total/NA	Water	300.0	
360-37596-1	OC-GW-26	Total/NA	Water	300.0	
360-37596-2	OC-GW-10s	Total/NA	Water	300.0	
360-37596-3	OC-GW-76s	Total/NA	Water	300.0	
360-37596-4	OC-GW-24	Total/NA	Water	300.0	
360-37596-5	OC-GW-25	Total/NA	Water	300.0	

General Chemistry (Continued)

Analysis Batch: 84104 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 360-84104/4	Lab Control Sample	Total/NA	Water	300.0	
MB 360-84104/3	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 84183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
360-37596-2	OC-GW-10s	Total/NA	Water	L107-06-1B	84076
360-37596-3	OC-GW-76s	Total/NA	Water	L107-06-1B	84076
360-37596-4	OC-GW-24	Total/NA	Water	L107-06-1B	84076
360-37596-5	OC-GW-25	Total/NA	Water	L107-06-1B	84076
LCS 360-84076/2-A	Lab Control Sample	Total/NA	Water	L107-06-1B	84076
MB 360-84076/1-A	Method Blank	Total/NA	Water	L107-06-1B	84076

Method: 6010B - Dissolved Metals

Lab Sample ID: MB 360-83882/2
Matrix: Water
Analysis Batch: 83882

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		100	13	ug/L			11/23/11 14:19	1
Chromium	ND		5.0	0.65	ug/L			11/23/11 14:19	1

Lab Sample ID: LCS 360-83882/1
Matrix: Water
Analysis Batch: 83882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5000	5100		ug/L		102	80 - 120
Chromium	1000	1010		ug/L		101	80 - 120

Lab Sample ID: LCSD 360-83882/13
Matrix: Water
Analysis Batch: 83882

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	5000	5030		ug/L		101	80 - 120	2	20
Chromium	1000	994		ug/L		99	80 - 120	1	20

Lab Sample ID: 360-37596-1 MS
Matrix: Water
Analysis Batch: 83882

Client Sample ID: OC-GW-26
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	ND		5000	4540		ug/L		91	75 - 125
Chromium	6.1		1000	909		ug/L		90	75 - 125

Lab Sample ID: 360-37596-1 DU
Matrix: Water
Analysis Batch: 83882

Client Sample ID: OC-GW-26
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	ND		ND		ug/L		NC	20
Chromium	6.1		5.82		ug/L		5	20

Method: 300.0 - Chloride & Sulfate

Lab Sample ID: MB 360-84104/3
Matrix: Water
Analysis Batch: 84104

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0	2.0	mg/L			11/21/11 17:49	1
Chloride	ND		1.0	1.0	mg/L			11/21/11 17:49	1

Lab Sample ID: LCS 360-84104/4
Matrix: Water
Analysis Batch: 84104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	80.0	81.1		mg/L		101	85 - 115

Method: 300.0 - Chloride & Sulfate (Continued)

Lab Sample ID: LCS 360-84104/4
Matrix: Water
Analysis Batch: 84104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	40.0	40.7		mg/L		102	85 - 115

Method: L107-06-1B - Nitrogen Ammonia

Lab Sample ID: MB 360-83810/1-A
Matrix: Water
Analysis Batch: 83913

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 83810

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.10	0.10	mg/L		11/23/11 09:19	11/23/11 14:25	1

Lab Sample ID: LCS 360-83810/2-A
Matrix: Water
Analysis Batch: 83913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 83810

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	10.0	10.4		mg/L		104	90 - 110

Lab Sample ID: MB 360-84076/1-A
Matrix: Water
Analysis Batch: 84183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 84076

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.10	0.10	mg/L		11/30/11 10:45	11/30/11 16:18	1

Lab Sample ID: LCS 360-84076/2-A
Matrix: Water
Analysis Batch: 84183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 84076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	10.0	9.85		mg/L		99	90 - 110

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 360-83626/3
Matrix: Water
Analysis Batch: 83626

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			11/19/11 08:19	1

Lab Sample ID: LCS 360-83626/1
Matrix: Water
Analysis Batch: 83626

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Specific Conductance	1410	1400		umhos/cm		99	85 - 115

TestAmerica Westfield

Analytical Dilution Preparation Log

Date: 11-21-11

Analyst Initials	Date	Method	LIMs Sample ID	Rpt'd Dil.	Sample Aliquot 1	Units	Final Volume 1	Units	Serial Dilution				Comments
									Sample Aliquot 2	Units	Final Volume 2	Units	
RWE	11-21-11	300.0	37596 B1	10X	1	mL	10	mL					
↓	↓	↓	↓ B2	↓	↓	↓	↓	↓					
			B3										
			B4										
↓	↓	↓	↓ B5	↓	↓	↓	↓	↓					

entries completed by day [new page each day]

TestAmerica Westfield

Analytical Dilution Preparation Log

Date: 11-23-11

Analyst Initials	Date	Method	LIMs Sample ID	Rpt'd Dil.	Sample Aliquot 1	Units	Final Volume 1	Units	Serial Dilution				Comments
									Sample Aliquot 2	Units	Final Volume 2	Units	
RWE	11-23-11	NH3	37526A3A	10X	1	mL	10	mL					
			MS	10X	1								
			MSD	10X	1								
			37525A2A	10X	1	mL	10	mL					
			37526A1A	10X	1								
			A2A	10X	1								
			A4A	10X	1								
			A5A	10X	1								
			A6A	10X	1								
			A7A	10X	1								
			A8A	10X	1								
			MS	10X	1								
			MSD	10X	1								
			37527B1	10X	1								
			37552B6A	10X	1								
			B7A	10X	1								
			B8A	10X	1								
			B9A	10X	1								
			37596A1A	10X	1								

entries completed by day [new page each day]

TestAmerica Westfield

Analytical Dilution Preparation Log

Date: 11-23-11

Analyst Initials	Date	Method	LIMs Sample ID	Rpt'd Dil.	Sample Aliquot 1	Units	Final Volume 1	Units	Serial Dilution				Comments
									Sample Aliquot 2	Units	Final Volume 2	Units	
RJF	11-23-11	NH3	37526A6A	50X	200	uL	10	mL					
"	"	"	37552B7A	50X	"	"	"	"					

entries completed by day [new page each day]

12/2/2011

015e

TestAmerica Westfield

Analytical Dilution Preparation Log

Date: 11-30-11

Analyst Initials	Date	Method	LIMs Sample ID	Rpt'd Dil.	Sample Aliquot 1	Units	Final Volume 1	Units	Serial Dilution				Comments
									Sample Aliquot 2	Units	Final Volume 2	Units	
RLE	11-30-11	NH3	375916AHA	10X	1	mL	10	mL					
↓	↓	↓	↓ ASA	10X	1	mL	10	mL					
↓	↓	↓	↓ AHA	4X	2.5	mL	10	mL					
↓	↓	↓	↓ ASA	4X	2.5	mL	10	mL					

entries completed by day [new page each day]

12/2/2011

016

Lab Chronicle

Client: Olin Corporation
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37596-1

Client Sample ID: OC-GW-26

Lab Sample ID: 360-37596-1

Date Collected: 11/11/11 09:35

Matrix: Water

Date Received: 11/11/11 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010B		1	83882	11/23/11 14:22	TJS	TAL WFD
Total/NA	Analysis	SM 2510B		1	83626	11/19/11 08:45	AMS	TAL WFD
Total/NA	Prep	Distill/Ammonia			83810	11/23/11 09:19	RWE	TAL WFD
Total/NA	Analysis	L107-06-1B		10	83913	11/23/11 15:08	RWE	TAL WFD
Total/NA	Analysis	300.0		1	84104	11/21/11 19:58	RWE	TAL WFD
Total/NA	Analysis	300.0		10	84104	11/21/11 20:14	RWE	TAL WFD

Client Sample ID: OC-GW-10s

Lab Sample ID: 360-37596-2

Date Collected: 11/11/11 10:20

Matrix: Water

Date Received: 11/11/11 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010B		1	83882	11/23/11 14:34	TJS	TAL WFD
Total/NA	Analysis	SM 2510B		1	83626	11/19/11 08:46	AMS	TAL WFD
Total/NA	Analysis	300.0		1	84104	11/21/11 21:35	RWE	TAL WFD
Total/NA	Prep	Distill/Ammonia			84076	11/30/11 10:45	RWE	TAL WFD
Total/NA	Analysis	L107-06-1B		1	84183	11/30/11 16:26	RWE	TAL WFD

Client Sample ID: OC-GW-76s

Lab Sample ID: 360-37596-3

Date Collected: 11/11/11 11:25

Matrix: Water

Date Received: 11/11/11 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010B		1	83882	11/23/11 14:37	TJS	TAL WFD
Total/NA	Analysis	SM 2510B		1	83626	11/19/11 08:48	AMS	TAL WFD
Total/NA	Analysis	300.0		1	84104	11/21/11 22:07	RWE	TAL WFD
Total/NA	Prep	Distill/Ammonia			84076	11/30/11 10:45	RWE	TAL WFD
Total/NA	Analysis	L107-06-1B		1	84183	11/30/11 16:27	RWE	TAL WFD

Client Sample ID: OC-GW-24

Lab Sample ID: 360-37596-4

Date Collected: 11/11/11 09:35

Matrix: Water

Date Received: 11/11/11 17:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010B		1	83882	11/23/11 14:40	TJS	TAL WFD
Total/NA	Analysis	SM 2510B		1	83626	11/19/11 08:49	AMS	TAL WFD
Total/NA	Analysis	300.0		1	84104	11/21/11 22:39	RWE	TAL WFD
Total/NA	Prep	Distill/Ammonia			84076	11/30/11 10:45	RWE	TAL WFD
Total/NA	Analysis	L107-06-1B		4	84183	11/30/11 16:52	RWE	TAL WFD

Lab Chronicle

Client: Olin Corporation
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37596-1

Client Sample ID: OC-GW-25
Date Collected: 11/11/11 08:35
Date Received: 11/11/11 17:25

Lab Sample ID: 360-37596-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6010B		1	83882	11/23/11 14:43	TJS	TAL WFD
Total/NA	Analysis	SM 2510B		1	83626	11/19/11 08:51	AMS	TAL WFD
Total/NA	Analysis	300.0		10	84104	11/21/11 20:46	RWE	TAL WFD
Total/NA	Prep	Distill/Ammonia			84076	11/30/11 10:45	RWE	TAL WFD
Total/NA	Analysis	L107-06-1B		4	84183	11/30/11 16:53	RWE	TAL WFD

Laboratory References:

TAL WFD = TestAmerica Westfield, Westfield Executive Park, 53 Southampton Road, Westfield, MA 01085, TEL (413)572-4000

Certification Summary

Client: Olin Corporation
Project/Site: Olin Chemical

TestAmerica Job ID: 360-37596-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Westfield	Connecticut	State Program	1	PH-0494
TestAmerica Westfield	Maine	State Program	1	MA00014
TestAmerica Westfield	Massachusetts	State Program	1	M-MA014
TestAmerica Westfield	New Hampshire	NELAC	1	2539
TestAmerica Westfield	New York	NELAC	2	10843
TestAmerica Westfield	North Carolina	North Carolina DENR	4	647
TestAmerica Westfield	Rhode Island	State Program	1	LAO00057

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

State Accreditation Matrix

Method Name	Description	State where **Primary** Accreditation is Carried		
		New Hampshire (NELAC)	Mass	Conn
821-R-02-012	Toxicity, Acute (48-Hour)(list upon request)	NP		
SM 4500 Cl F	Chlorine, Residual		NP	
SM 9215E	Heterotrophic Plate Count (SimPlate)		P	
SM 9222D	Coliforms, Fecal (Membrane Filter)		P/NP	
SM 9223	Coliforms, Total, and E.Coli (Colilert-P/A)		P	
SM 9224	Coliforms, Total, and E.Coli (Enumeration)		P	
1103.1	E.coli		ambient/ source	
Enterolert	Enterococcus			
200.8 Rev 5.4	Metals (ICP/MS) (list upon request)	NP/P	NP/P	
200.7 Rev 4.4	Metals (ICP)(list upon request)	NP/P	NP/P	
6010B/C	Metals (ICP)(list upon request)	NP/SW		
245.1	Mercury (CVAA)	NP/P	NP	
7470A	Mercury (CVAA)	NP		
7471A	Mercury (CVAA)	SW		
SM 2340B	Total Hardness (as CaCO3) by calculation	NP/P	NP	
3005A	Preparation, Total Recoverable or Dissolved Metals	NP/P		
3010A	Preparation, Total Metals	NP/P		
3020A	Preparation, Total Metals	NP/P/SW		
3050B	Preparation, Metals	SW		
504.1	EDB, DBCP and 1,2,3-TCP (GC)	P	P	
608	Organochlorine Pest/PCBs (list upon request)	NP	NP	
625	Semivolatile Org Comp (GC/MS)(list upon request)	NP	NP	
3546	Microwave Extraction	SW		
3510C	Liquid-Liquid Extraction (Separatory Funnel)	NP		
3550B	Ultrasonic Extraction	SW		
8081AB	Organochlorine Pesticides (GC)(list upon request)	NP/SW		
8082/A	PCBs by Gas Chromatography(list upon request)	NP/SW		
8270C/D	Semivolatile Comp.(GC/MS)(list upon request)	NP/SW		
CT ETPH	Conn - Ext. Total petroleum Hydrocarbons (GC)	NP/SW		NP/SW
MA-EPH	Mass - Extractable Petroleum Hydrocarbons (GC)	NP/SW		
524.2	Volatile Org Comp (GC/MS)(list upon request)	P	P	
524.2	Trihalomethane compounds	P	P	
624	Volatile Org Comp (GC/MS)(list upon request)	NP	NP	
5035	Closed System Purge and Trap	SW		
5030B	Purge and Trap	NP		
8260B/C	Volatile Org Comp. (GC/MS)(list upon request)	NP/SW		
MAVPH	Mass - Volatile Petroleum Hydrocarbons (GC)			
180.1	Turbidity, Nephelometric	P	P	
300	Anions, Ion Chromatography	NP/P	NP/P	
410.4	COD	NP	NP	
1010	Ignitability, Pensky-Martens Closed-Cup Method	SW		
10-107-06-2	Nitrogen, Total Kjeldahl	NP	NP	
7196A	Chromium, Hexavalent	NP/SW		
9012A	Cyanide, Total and/or Amenable	NP/SW		
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	NP		
9045C	pH	SW		
L107041C	Nitrogen, Nitrate	NP	P	
L107-06-1B	Nitrogen Ammonia	NP	NP	
L204001A CN	Cyanide, Total	P	NP/P	
L210-001A	Phenolics, Total Recoverable	NP	NP	
SM 2320B	Alkalinity	NP/P	NP/P	
SM 2510B	Conductivity, Specific Conductance	NP/P	NP/P	
SM 2540C	Solids, Total Dissolved (TDS)	NP/P	NP/P	
SM 2540D	Solids, Total Suspended (TSS)	NP	NP	
SM 3500 CR D	Chromium, Hexavalent	NP		
SM 4500 H+ B	pH	NP/P	NP/P	
SM 4500 NO2 B	Nitrogen, Nitrite	NP	P	
SM 4500 P E	Phosphorus, Orthophosphate	NP/P	NP	
SM 4500 P E	Phosphorus, Total	NP	NP	
SM 4500 S2 D	Sulfide, Total	NP		
SM 5210B	BOD, 5-Day	NP	NP	
SM 5310B	Organic Carbon, Total (TOC)	NP/P	NP	

Not all organic compounds are accreditied under NELAC
For methods with multiple compounds all compounds may not meet NELAC criteria, listing should be obtained from the laboratory
The lab carries additional accreditations with several states. This is the laboratories typcial listing but is subject to change based on the laboratories current certification standing.

Login Sample Receipt Checklist

Client: Olin Corporation

Job Number: 360-37596-1

Login Number: 37596

List Source: TestAmerica Westfield

List Number: 1

Creator: Beaumier, Janine E

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica Westfield
Westfield Executive Park 53 Southampton Road
Westfield, MA 01085
Phone (413) 572-4000 Fax (413) 572-3707

GW

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: C. Mazzolini / Brian Grochowski	Lab PM: Becky Mason	Carrier Tracking No(s):	COC No: 017510
Client Contact: James Cashwell	Phone:	E-Mail:		Page: 1 of 1
Company: Olin Corporation				Job #: 360-37596
Address: 51 Eames St	Due Date Requested:			
City: Wilmington	TAT Requested (days): Standard			
State, Zip: MA 01887				
Phone:	Quote #:			
Email:	PO #:			
Project Name/number: Olin Semiannual	WO #:			
Site: Olin Wilmington MA	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; H - Ascorbic Acid; I - Ice; J - DI Water; M - Hexane; N - None; P - Na2O4S; Q - Na2SO3; R - Na2S2SO3; S - H2SO4; Z - other (specify)

Regulatory programs: MCP ☐ GW1/S1 ☐; RCP ☐ CT RSR ☐; DEP Form ☐ EDD Required ☐

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Sampler's Initials	Field Filtered Sample?	Perform MS/MSD?	Ammonia Leach	Chloride / Sulfate / Sp Cond	Dis. Al / Cr + Field Filtered	Total Number of containers	Special Instructions/Note:
Preservation Code:								S	N	D		
OC-GW-26	11/11/11	0935	G	GW	CM	Y	N	X	X	X	3	
OC-GW-10S	11/11/11	1020	G	GW	CM	Y	N	X	X	X	3	
OC-GW-76S	11/11/11	1125	G	GW	CM	Y	N	X	X	X	3	
OC-GW-24	11/11/11	0935	G	GW	BEC	Y	N	X	X	X	3	
OC-GW-25	11/11/11	0835	G	GW	BEC	Y	N	X	X	X	3	

11/11/11

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	11-11-11 1500	AMEC		11-11-11 1500	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	11-11-11 17:35			11/11/11 17:25	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☒ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 6.0°C wt ice